



جامعة صنعاء
كلية الطب والعلوم الصحية
دائرة العلوم السريرية الطبية
دفعة بصمه طبيب 31
طب بشري

OPHTHALMOLOGY

Strabismus

Lecture No. **13**

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جروب ((C))

اللجنة العلمية لدفعة بصمة طبيب 31

مندوب الدفعة

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! Anatomy + physiology SCUNT

دا حيز شافو

- The eye is moved by 6 Extraocular muscle [4 Recti - 2 oblique] which Rotate the eye around 3 axis.

1. vertical axis $\Rightarrow$ Abduction and Adduction.
2. Horizontal axis $\Rightarrow$ elevation and depression.
3. Antero-posterior axis $\Rightarrow$ Extorsion and intorsion.

So we have 4 Recti muscle and 2 oblique

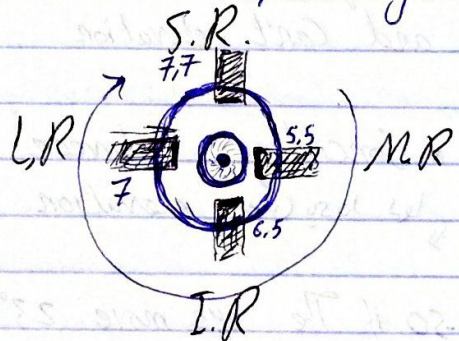
- 4 Recti $\Rightarrow$ medial - lateral - superior - inferior
- 2 oblique $\Rightarrow$ inferior - superior.

* Recti muscle:

- origin $\Rightarrow$ all Recti muscle originates from Fibrous Ring (annulus of Zinn) placed around The optic foramen.

- insertion $\Rightarrow$ all Recti muscle inserted to The sclera. near the limbus - in front of equator at specific distance:- from the limbus respectively.

- Medial Rectus. 5.5 mm
- inferior Rectus. 6.5 mm
- lateral Rectus. 7 mm
- superior Rectus. 7.7 mm



* oblique muscle:

- origin: - arise from floor of orbit [from shallow depression at the orbital floor lateral to opening of NLD.

I.O^e

obex * it's The muscle only that originate anteriorly in front of eye ball. هذا العضلة الوحيدة التي تنشأ في الأمام من كرة العين

- insertion: - inserted to lower posterior lateral quadrant of The sclera. [Behind The equator].

- S.O {
- * origin: - arise from The orbital apex above and medial to the optic Foramen [annulus of Zinn].
 - * insertion: - inserted to upper posterior lateral quadrant of The sclera.

- Blood supply :-

Each muscle have Two muscular arteries medial and lateral except (lateral recti). Branches of ophthalmic artery. which is Branch of internal carotid artery.
 « * so The L.R is more affected in D.M. »

لذلك دائماً مرض السكر يجب انهم يشاء في العضلة L.R لانها تتغذى بشريان خاص

- Nerve supply :-

M.R	⇒ by C.N3	Oculomotor
L.R	⇒ by C.N6	Abducent
S.R	⇒ by C.N3	Oculo
I.R	⇒ by C.N3	Oculo
S.O	⇒ by C.N4	Trochlear
I.O	⇒ by C.N3	Oculo

Eye Movements

1. Duction movement.
2. version movement.
3. Torsion movement.
4. vergence movement.

دائماً لما تتحرك العينين مع بعضنا تشغل عضلتين مع بعضنا بنفس الوقت وتنسق Yoke muscle.

عندما تشغل العضلتين للعينين مع بعضنا فإن الدماغ

Brain sending equal impuls to Both eyes to move at same Time ⇒ Called (synergistic muscle).

which muscles Contract Together

e.g ⇒ R.L.R and L.M.R ⇒ when eye move to Right side

* Action of eye muscles (Extraocular muscle).

Muscle	Main action	Accessory action
Medial Rectus	Adduction	NO
Lateral Rectus	Abduction	NO
superior Rectus	Elevation	Adduction-intorsion
inferior Rectus	Depression	Adduction-Extorsion
superior oblique	Intorsion	Depression-Abduction
inferior oblique	Extorsion	Elevation-Abduction

- intorsion $\Rightarrow$ it's move eye inward to 12 o'clock of Cornea.

- Extorsion $\Rightarrow$ it's move eye outward to 6 o'clock of Cornea.

* The Extorsion and Intorsion Action: - it's Responsible for Remain the Becture in standing position when head is moved.

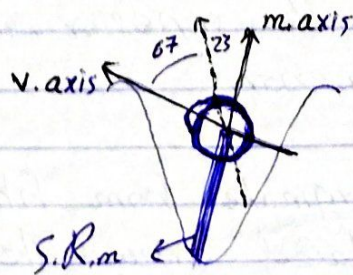
لذلك لن تتحرك راسك عينيك يظل لها
Extorsion والعين الأخرى

وهذا ما ينفلي في erect position وضع متوازن مع ثابت وقائمه

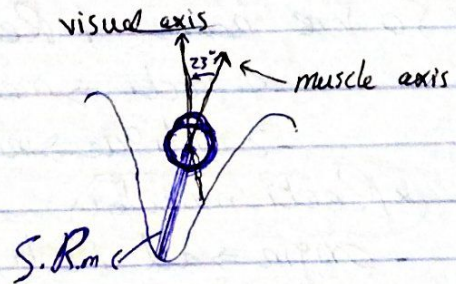
- superior muscle $\Rightarrow$ act intorsion,
- inferior muscle $\Rightarrow$ act extorsion.
- Recti muscle $\Rightarrow$ act adductor.
- obliques muscle $\Rightarrow$ act abductor
- elevators muscle $\Rightarrow$ S.R and I.O
- depressors muscle $\Rightarrow$ I.R and S.O

physiological action of S.R muscle.

- Muscle axis :- which is a line Between insertion and origine.
- visual axis :- it's the axis Between the object of Regard and Fovea.
- optic axis :- it's the axis which pass Through Center of Cornea and lens and Center of Retina.



- The visual axis is perpendicular to muscle axis. فوق
- The eye move 90°
- The eye is intorsion and adduction, and Can't elevation



- The visual axis and muscle axis is coincide. فوق
- The eye move 23°
- The eye is elevation, (maximum), and Can't intorsion or adduction

* Coincidence Between muscle axis and visual axis.

في هذا الموضع عند انقباض S.R.m. فوق
 elevation. فوق Contraction S.R.m. فوق
 . intorsion أو adduction

so if The eye move 23° adduction, so we Can have one action only $\Rightarrow$ This is elevation $\rightarrow$ why $\Rightarrow$ Because The elevation is The first Cardinal position of The eye by S.R muscle action.

في هذا الموضع فوق
 * In adduction position we Can Examine of S.R.m.

في جان العين تكونت 23° و 67° في العينين 90° في العينين
 - The visual axis is perpendicular to muscle axis $\Rightarrow$ which is moving. The eye is moves 90° .

* SO The adduction movement is maximum and elevation is zero - Nil.

The main action of The S.R muscle will be zero (Nil).

* Contraction of S.R muscle and eye move $23^\circ \Rightarrow$ elevation.

* more Contraction of S.R muscle and eye move $90^\circ \Rightarrow$ adduction and intorsion.

* Yoke muscle :- They are paired muscle which act together (synergistic) in any direction of gaze.

$\Rightarrow$ The L.R of Right eye is move and M.R of left eye is move at the same Time in same direction.

SO The medial Rectus is Yoke muscle

العضلات في نفس اتجاه حركة العين اليمنى التي تكونت Lateral R

* Herring's Law :- it's Conjugate ocular movement by equal simultaneous innervation flows to yoke muscle to move Both eye in certain direction.

* eg: Dextroversion $\Rightarrow$ R.LR and L.MR Contract by equal simultaneous flow of innervation

involuntary movement while R.MR and L.LR relax.

* Sherrington's law of reciprocal innervation (for same eye):-

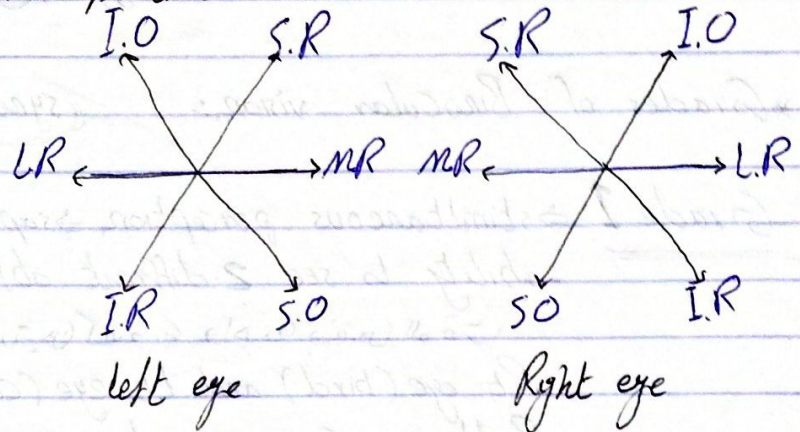
There is stimulation and contraction of The agonist muscle and simultaneous inhibitors and relaxation of antagonist muscle. eg. L.R and M.R of The same eye.

* Cardinal position of Gaze 6 :-

at each direction $\Rightarrow$ only one muscle moves eye ball. so any defect in this direction means defect it's muscle.

- So Each muscle is Tested for it's main action in one of 6 Cardinal direction by Asking The patient to follow The Examiner finger in that position.

- 1- M.R $\Rightarrow$ in
- 2- L.R $\Rightarrow$ up out
- 3- S.R $\Rightarrow$ up and in
- 4- I.R $\Rightarrow$ down and out
- 5- S.O $\Rightarrow$ down and in
- 6- I.O $\Rightarrow$ up and out



BinoCular vision

* Def :- it's Coordination use of 2 eyes to form single image (Fusion)

* Development:

- 0-6 months (fully developed of The fovea).

- six years (fully developed binoCular vision).

الطفل اول ما يولد تكون الـ Fovea عاده ما تكون نشي لذلك تلاحظ عينا يابسين مابين ما في Fixatio
كل عين تقول لو حدنا وبالتالي اي طفل عمره اقل من 6 اشهر ما تقدرش تكلم عليه
انه عنده جلا squint. الاسبوع 7 اشهر ممكن تقول انه في عنده جلا اولي

* Requirement of BinoCular vision:

1. clear oCular media (clear image),
2. Balanced muscle action (image on fovea),
3. well developed visual area of The Brain (fusion of images)

المرم تكون الصرع واضر. ثانياً لازم تسقط الصرع على الـ fovea. وهذا يتم بجمعها
ع ظلمات العين وتوازنها الى ان تشبث الصرع ثم توصل للدماغ ويعمل لها fusion

*Importance of Binocular vision:-

- 1- Large visual Field.
- 2- field defect in one eye is masked by other overlapping field
- 3- Stereopsis :- البعد الثالث للروئية
 استنشاق الـ length والـ width لاكن البعد الثالث هو (depth) stereopsis
 - so Stereopsis :- it is perceive of The depth of Third dimension,
 ادراك العمق او البعد الثالث للصورة

*Grades of Binocular vision:-

(synoptophore)

أوبسكوب (amblyscope)

Grade 1 ⇒ simultaneous perception, ⇒ superimposition of These 2 image.

- ability to see 2-different objects at one Time as 1 picture
 as 1 picture يقدر يشوف الصور شين كم صورة واحدة بنفس الوقت
- Rt eye (bird) and Lt eye (Cage) ⇒ Bird in Cage
 Both eyes Can see single image of bird in the Cage.

التيوب الى اطار العين اليمنى (العصفور) والتيوب الى اطار العين اليسرى (القفص) اذا شافهم
 اذا شاف العصفور بالقفص وينفس الوقت بدون تاخير = normal
 - Bird in Cage ⇒ normal Binocular vision.
 - Bird out Cage ⇒ scunt.

Grade 2 ⇒ Fusion

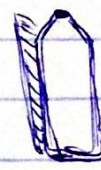
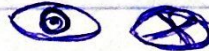
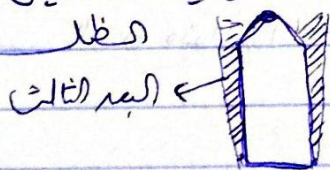
قدرة العقل على دمج الصور

- it is superimposition of 2 incomplete image of same object to give one complete image

الترتيب الاول ارنيا مع ذيل ومانيش معها اذان الترتيب الثاني ارنيا معها اذان بدون ذيل
 الدماغ يدمجهم مع بعض ويعطيتا صورة كاملة بدون نقص اذان او ذيل

Grade 3 ⇒ stereopsis ⇒ it is ability to perceive the depth,
 when viewing 2 slightly dissimilar ~~different~~ image of similar object.

اي اننا نشوف صورتين مختلفتين لنفس الجسم من زاويتين مختلفتين (الاناء)



مثال
 للفرق فقط

ضع امامك قارورة ماء وملح على الطاولة
 وعظمي يمينك اليسرى - اليمنى - ثم شاف بكتا العينين

* Exam of Binocular vision.

- How to assess of Binocular vision: By

1. synoptophore (amblyscope).

2. Worth's 4 dots Test:-

هذا المريض يلبس نظارة للعين اليمنى (أحمر) وللعين اليسرى (أخضر) ويكون واقفاً على بعد 6 متر ويكون أمامه أربع بقع (one red, one white, 2 green).

العين اليمنى بتشوق اللون (الأبيض - والأحمر) فقط ومابتشوق اللون الأخضر.

العين اليسرى بتشوق اللون (الأبيض - والأخضر) فقط ومابتشوق اللون الأحمر.

الطبيعي يتشوق للأربعة الألوان.

* أما إذا كانت Right eye is a dominant eye يتشوق أحمر والأبيض وتشوق الأحمر والعين

اليسرى بتشوق الشين (أخضر البقعين) أخضر (2 green and 2 Red dots).

(Normal Binocular vision) 4 أخضر والأبيض وتشوق الأخضر

* أما إذا كانت Left eye is dominant يتشوق بالعين اليسرى 3 green واليمنى بتشوق

البقية الحمراء فقط وهذا (Normal Binocular vision).

- أما إذا شاق ثلاث بقع أخضر باليسرى واليمنى ما تشق حاجبه (اللون الأحمر) أي أنه

اليسرى - غالة والعين اليمنى suppression (يتشوق بعين واحدة)

(abnormal Binocular vision), monocular vision

- إذا شاق بالعين اليمنى بقعتين أحمر وبالعين اليسرى ما تشق حاجبه أي أن العين اليمنى

غالة واليسرى suppression. single vision

. إذا شاق خمس بقع 5 dots = Diplopia = كل عين تشوق لونها

- 4-Dots $\Rightarrow$ Normal Binocular vision

- 5-Dots $\Rightarrow$ Diplopia.

- 3-Dots green $\Rightarrow$ Right eye suppression.

- 2-Dots red $\Rightarrow$ Left eye suppression.

* Orthophoria: it's normal muscle Balance and visual axis relation.

أي أن هناك توازن في العضلات التي تتحكم في العينين (توجيه العينين)

Clear image. رؤية واضحة في الفovea أو نقطة التقاطع في العينين

eg. - for far vision $\Rightarrow$ eyes is parallel.

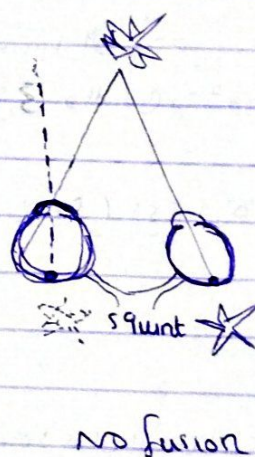
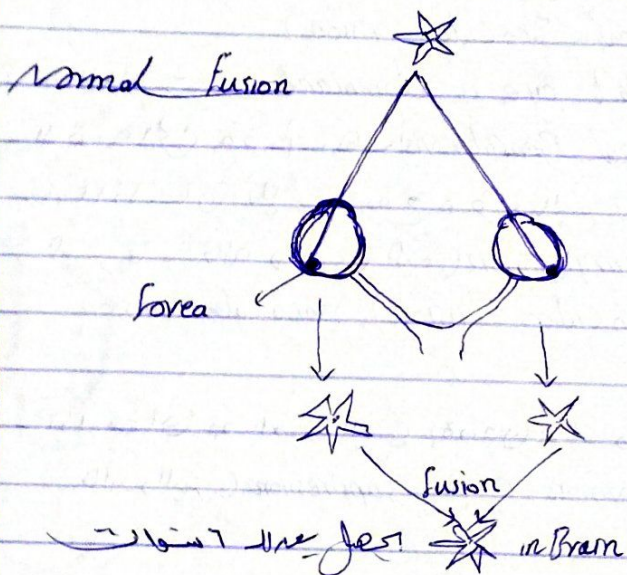
- for near vision $\Rightarrow$ eyes is crossed

أو نقطة التقاطع في الشبكية لها نقطة تقاطع في العينين (أي أن نقطة التقاطع في العينين لها نقطة تقاطع في الشبكية)

Corresponding points for Both eyes $\Rightarrow$ fovea. (نقطة التقاطع في العينين)

Squint

* Def: a Condition in which the visual axis of the 2 eyes are not directed to The same object.
(Deviation of the visual axis)



* Types of squint:

1. apparent squint (false) $\Rightarrow$ pseudo squint.

2. True squint.

Latent squint (heterophoria)

Manifest squint
(heterotropia)

Concomitant squint

non accommodative.

accommodative.

paralytic squint
(incomitant)

* Apparent squint :- it is condition in which the person appears to have squint although the 2 visual axis are directed to the same object.

* Causes of apparent squint :-

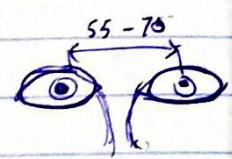
1- Apparent Convergent squint (pseudo-esotropia).

- prominent epicanthus folds.

- high myopia due to negative angle alpha.

- small intra pupillary distance (IPD).

normal IPD $\Rightarrow$ 55-70 mm



2- Apparent divergent squint (pseudo-exotropia)

- large I.P.D $\Rightarrow$ hypertelorism. (wide separation of the 2 eyes).

- high hypermetropia $\Rightarrow$ large positive angle alpha ($> +5$).

- lateral Ankyloblepharon: adhesion between the lid margin.

3- Apparent vertical squint (pseudo-hyper or hypotropia).

- ptosis.

- lid retraction.

* Diagnosis of apparent squint :-

- presence of the cause.

- by glasses ✓

- if there is error of refraction (hypermetropia - high myopia).

Central Corneal reflex.

Hirschberg Test

Center of Cornea. الضوء يسقط على



Negative Cover test.

تغطي العين الأخرى وتنتقل بالعين الثابتة إلى تلك العين.
 ان فرامله squint

- no movement occurs throughout test & it is apparent squint.

* Treatment of apparent squint :- Treatment of the causes.

* Latent squint :- (heterophoria).

It is Abnormal visual axes direction when binocular vision is dissociated.

* Predisposing factors :- General fatigue - fever - mental fatigue - ocular fatigue.

* Types of latent squint :-

1. exophoria: eye deviate out
2. Esophoria: eye deviate in
3. hyper phoria: eye deviate up
4. hypophoria: eye deviate Down
5. ExCyclophoria: eye roll around AP axis.

* Aetiology of latent squint.

1. unCorrected errors of refraction.

- hypermetropia $\Rightarrow$ excessive convergence $\rightarrow$ eso
- myopia $\Rightarrow$ exophoria $\rightarrow$ exo

ولذلك إذا كان هناك apparent squint يكون في الحقيقة

(hypermetropia - myopia) latent squint

2. Muscle weakness. $\rightarrow$ esophoria

3. over straining of the muscle.

(close work) $\Rightarrow$ esophoria

* Clinical picture of (latent squint).

1. Compensated 80%.

- Asymptomatic.

2. DeCompensated 20%

- fever, ill, fatigue

- excessive strain $\Rightarrow$ headache - lacrimation (muscular atheropia).

- Running letters.

- horizontal deviation يشوق اللامي في نفس السطر بدلاً من أن يكون في سطرين

- vertical deviation يشوق السطور تتداخل مع بعض

- intermittent squint يشوق أحياناً ثم يتوقف

وقد يتحول إلى manifest squint.

3. Maddox wing (for near).

Q. Aim of Diagnosis of heterophoria for near.

- it is measure the angle of squint.

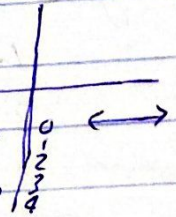
- There is vertical and Horizontal numbers (scales)

* The Rt eye see 2 arrows (vertical - Horizontal)

* The Lt eye see 2 scales (V and Horizontal)

- if normal $\rightarrow$ pt seen the arrow point to the zero.

- if pt seen arrows other than zero is heterophoria.



* Treatment of latent squint :-

* Compensated Cases $\Rightarrow$ no symptoms $\rightarrow$ no Treatment.

* DeCompensated Cases.

$\rightarrow$ 1- Correct any error of refraction $\Rightarrow$ glasses.

$\rightarrow$ 2- strength the weak muscle by. طرق العلاج

1- orthoptic exercises. (pencil nose exercises)

2- exercising prism

طريق العلاج

used for young pt (Base toward the deviation)

3- Relieving prism

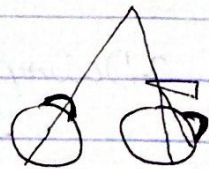
used in old age and in vertical phoria.

Base of the prism against the deviation.

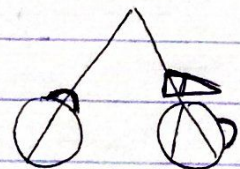
$\rightarrow$ 3- surgery $\Rightarrow$ if all the above failed.

strengthen the weak muscle or weak overacting muscle.

Based toward the deviation



Based against the deviation



* Diagnosis:1- Cover-unCover Test.

- ask patient to fix an object (to watch).

- Cover then unCover one eye تغطي عين واحدة ثم تكشفها

- if this eye deviates under the Cover then Correct its position, with unCovering to get binocular vision again.
There is latent squint

وهو تلت ال Cover تكون العين تلت تأثر ال E.U.M - لذلك ال deviate

ببسط لو شلت ال Cover من على العين. ال B.V. يرجع مع ثانية

في هذه الحالة ال Brain سيجل تصحيح Correct Deviation ويرجع العين ال Center

2- Maddox Rod (for far). فحص في نظارة في البعد

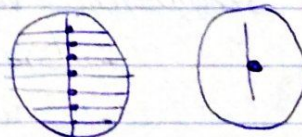
- Maddox rod. it's group of red cylinders (4-5) arranged parallel to each other.

وهي تتكون من عدة اسطوانات حمراء

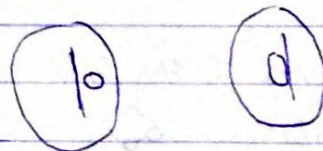
- This produce a red line image (from point of source of light). This red line is perpendicular to the axis of the cylinders.

normal اذا كان * if it is normal (orthophoric) see the point of light coinciding with the middle of the red line.

الخط والنقطة يركبو فوق بعض



* if it's abnormal (heterophoria) see the red line on either side of the light spot.



exophoria

esophoria

* Manifest squint :- There is Two Types

A. paralytic squint. $\Rightarrow$ it is Abnormal visual axes direction. $\rightarrow$
variable squint angle in different gaze direction
or $\Rightarrow$ it is paralysis of one or more of E.O.M. in which the
angle of squint is variable in different direction of gaze.

* aetiology. (it is due to lesion in the E.O.M or nerve supply of E.O. of E.O.M. as in D.M patient (lateral rectus) (L.M.V.)

1. Nucleus lesion:-

- Congenital $\Rightarrow$ Absence of Nucleus.
- inflammatory $\Rightarrow$ encephalitis.
- Neoplastic Tumor of Brain stem.
- vascular $\Rightarrow$ Thrombosis - embolism.
- Toxic $\Rightarrow$ diphtheria.

2. Nerve lesion:-

- Congenital $\Rightarrow$ aplasia.
- inflammatory $\Rightarrow$ meningitis. etc
- Trauma.
- vascular.

3. Muscle lesion

- Congenital $\Rightarrow$ mal developmental of E.O.M.
- Trauma $\Rightarrow$ fracture of orbital Bone.
- Thyrotoxic $\Rightarrow$ Exophthalmos.
- inflammatory $\Rightarrow$ myositis.

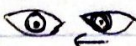
* Clinical picture :-

1. Double vision (diplopia).

$\rightarrow$ diplopia
المريض يرى صورتين
التي هي في الواقع واحدة
ويجب أن تكون
تظهر

Two images $\Rightarrow$ clear image

$\Rightarrow$ Blurred image

2. Ocular deviation 

3. Ocular Torticollis: Compensated head position (to same direction of
paralysis muscle. $\Rightarrow$ to avoid diplopia.

المريض يميل رأسه في الاتجاه الذي فيها

العضلة التي شغلتها من أجل تجنب diplopia فيكون بركة الرأس.

4. vertigo, nausea, vomiting, headache.

* Diagnosis

- 1-symptoms and sign.
2. Diplopic chart $\rightarrow$ to determine the paralyzed muscle.
3. Hess screen

مثلاً

Diplopic chart

مبارع من لوحة فيها مربعات بيضاء من الـ Ocular direct وهذا عشان أعرف
بها الـ Diplopia $\rightarrow$ أظلمها قدام المريض ثم أله من كل جربع وكل شايق في المربع
دك والـ اثنين في الـ واحدة بينهم

* Treatment:-

- Medical Treatment.

- Treatment The Cause (H.T.N - D.M. - etc.).
- Occlusion of one eye to avoid diplopia (Cover squinting eye.)

- surgical Treatment.

- if muscle is weakness. strengthen The weak muscle by resection of weak muscle. part it's direct antagonist by resection.
- if muscle is Completely paralyzed $\Rightarrow$ muscle Transposition (Jensen operation).

* 2. Non-paralytic squint (Concomitant) squint.

Def: it's manifest squint, not due to paralysis of E.O.M. in which the angle of squint is the same in all directions of gaze (1y angle and 2y angle) so the movements of The Covered and uncovered eyes are equal.

* Etiology: ١- انما ان المبالغ يتأثر العين الثانية ويركن على واحدة

* - Binocular vision is fully developed Between The gaze (6 months - 6 years) أي ما يطرأ الكا العينين ٦ أشهر و ٦ سنوات

any obstacle to Binocular vision during This Critical period would Result in ocular deviation.

(E.O.M imbalance with no Binocular vision) memory

* Etiology of Concomitant squint. such obstacles might be

sensory obstacles

- Error of refraction
- Congenital cataract
- Corneal opacity

motor obstacles

- Congenital anomalies in ocular muscles
- eg. L.R hyperphoria
- قصور العينات من أصل الولادة
- muscle weakness.

central obstacle.

- No fusion of center in Brain

* Angle of squint

انحراف العين في النظر

- in paralytic squint (angle between the deviation. A.V and V.A are normal).

Angle of squint

The primary angle of Deviation
زاوية انحراف العين الأولى

- when the normal eye is fixing
- ~~Deviation is larger than~~

The secondary angle of Deviation

زاوية انحراف العين الثانية

when the paralyzed eye is fixing.

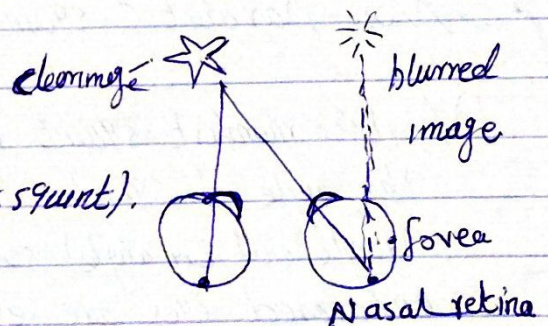
The angle of primary deviation

- * The angle of secondary deviation is larger than angle of primary deviation $\Rightarrow$ according to herring's law.

* Diplopia (double vision).

1- uncrossed Diplopia (convergent squint).

L.R paralysis $\Rightarrow$ uncrossed diplopia
as image fall on the nasal retina
(projected Temporarily).



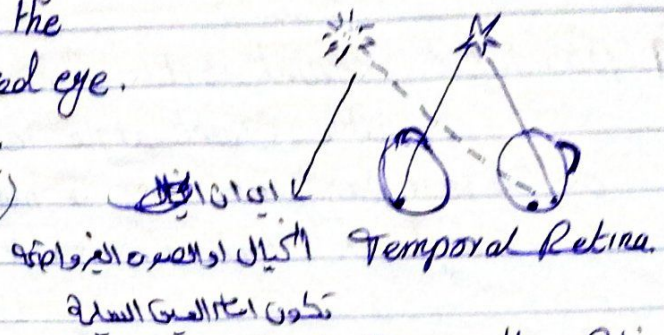
وهذا نشوئها في حالات
Convergent squint.

* 2-Crossed diplopia: (divergent squint).

- when false image falls on the opposite side of the paralyzed eye.

eg:- medial Rectus paralysis.

adductor paralysis $\Rightarrow$ exotropia



- M.R paralysis Crossed as The image fall on The Temporally Retina projection Nasally.

الكامرة الى على الجانب nasal نشوؤها بال Temporal retina

والكامرة الى على الجانب Temp نشوؤها بال Nasal retina

* False projection:

it is false orientation of objects situated in the same Direction of action of the paralysed muscle.

eg:- wrong estimation of The site (with normal eye covered)

هذه الظاهر لا يتأكد الى اذا نظرت العين السليمة.

- Cause:- The Brain sends excessive impulse to the paralyzed muscle to force it to Contract $\Rightarrow$ The patient point away in the same direction of action of paralyzed muscle.

وهذا ان الدماغ يبذل مجهود كبير عما ان يتكلم العين Fix تركيز وتثبت على
روثية الهدف Object . والمجهود الكبير يفس على ان object أبعد من مكانه

* Types of ~~the projection~~ (deviation)

1. unilateral: The deviation always in one eye

2. Alternating The deviation is by either eye at different Times.

* sequel of Concomitant squint:-

- with onset of squint. The images of The object will fall on non-corresponding points of The Retina and binocular diplopia must occur.

1-suppression:-

- it occurs in alternating squint.
- it is active neglect by The Brain to the image seen by squinting eye.
- on Covering the fixing eye $\Rightarrow$ the squinting eye will fix and with good V.A (6/6) with no suppression and The eye under the Cover will deviate (by same angle),
- on Removal of The Cover $\Rightarrow$ The new position will remain and suppression will be Transmitted to the other eye

تغطي العين السليمة العين تعطلت ثم اقبل ال Cover من العين السليمة واشوق
لو جلست العين deviate لفترة من الوقت هذا ال suppression فالعين السليمة
يقل deviation هذا يسمى alternative squint

2-Amblyopia ex-anopia:-

- it occurs in unilateral squint.
- it is decreased of V.A. in the squinting eye due to prolonged suppression. (6/60)
- on Covering. The fixing eye $\Rightarrow$ The squinting eye will be fix and with bad V.A (6/60)

- on Removal of The Cover. $\Rightarrow$ The original position will return.

تغطي العين السليمة العين تعطلت العين السليمة يسهل Fixation
عند اقبل ال Cover من العين السليمة العين تعطلت العين ال squint
وهذا يسمى amblyopia unilateral squint

3. Eccentric Fixation: $\Rightarrow$ false Fovea Central object.

* Investigation:

1. V.A.
2. ocular motility
3. pupil dilatation.
4. Cover test
5. Measurement of squint angle.

* Treatment: - Concomitant squint.

- Aim of Treat

1. to build and restore binocular vision
2. to improve and preserve V.A of squint eye
3. to improve the Cosmotic appearance.

- Lines Treatment.

1. NO Error.

- surgery.

2. Errors

1. Drugs

2. glasses

* glasses

- Bad V.A $\Rightarrow$ occlusion $\rightarrow$

squint eye $\rightarrow$ eccentric fixation
 normal eye $\rightarrow$ Centric fixation

improve V.A by orthoptic
Therapy

- Good V.A $\Rightarrow$ orthoptic Therapy.

Complete Recovery

Residual angle
surgery